

REMARKS

Claims 25-66 stand rejected for obviousness-type double patenting over the claims of commonly-owned U.S. 6,676,821 to Hempelmann (corresponding to DE 198 40 842, cited with translation) in view of U.S. 5,116,468 to Giersberg. Claims 25-66 also stand rejected under 35 U.S.C. § 103(a) as obvious over Giersberg in view of Hempelmann. These rejections should not be maintained, for the following reasons.

Certain accepted principles apply equally to situations of obviousness and obviousness-type double patenting. A proper *prima facie* rejection on either ground requires that all elements of the invention appear in the references as combined or modified to arrive at the claimed subject matter, and that some evidence would have suggested the combination or modification of the references needed to meet the claims. M.P.E.P. §§ 2143.01, 2143.03. There must be some reasonable expectation that the proposed modification or combination would succeed. M.P.E.P. § 2143.02.

The required motivation or suggestion to modify or combine reference teachings may come from the nature of the problem to be solved, the teachings of the prior art itself, or the knowledge of one of ordinary skill. M.P.E.P. § 2143.01.I. The fact that references can be combined or modified, or that such combination or modification is within the ability of one of ordinary

skill, does not supply the motivation or suggestion to support a rejection. M.P.E.P. § 2143.01.III. Further, a proposed modification cannot change the principle of operation of a reference. M.P.E.P. § 2143.01.VI. Lastly, with respect to obviousness-type double patenting, only the claims of the primary reference (Hempelmann) may be looked to as prior art; the specification may be considered only to define unclear terms in those claims. M.P.E.P. § 804.II.B.1.

The arguments that follow are directed to the patentability of the single independent claim, claim 25. Applicants contend that the present double patenting and obviousness rejections lack the requisite evidence of motivation to combine the teachings of the references to reach claim 25. Further, the modifications of Giersberg needed to arrive at claim 25 would have been made without any reasonable basis to expect success and completely alter basic operating principles of that reference. Detailed explanation of these contentions follows.

#### Obviousness-Type Double Patenting

The claims of the Hempelmann patent, which form the primary reference in this rejection, do not disclose several significant elements of present claim 25. The Hempelmann claims fail to disclose the use of cathode and anode half-cells, as well as the prevention of halogens from migrating from the anode half-cell to the cathode half cell. Giersberg admittedly does teach the use of a membrane to separate the cathode and anode into half-cells,

but the inquiry does not stop there. The question that is not answered by the rejection is why one of skill would have been motivated to add the membrane of Giersberg to the cell of the Hempelmann claims.

The rejection of 3 July 2006 states that Giersberg "is cited to show the use of a separator to separate the anode from the cathode," concluding that applicants' claims would have been obvious "because the Giersberg patent teaches the use of a diaphragm to separate the anode from the cathode chambers." This rejection was made final "for reasons of record." In substance, the rejection amounts to nothing more than saying the claims are obvious because the element missing from Hempelmann is found in Giersberg. As a matter of law, this is insufficient to make the rejection; there must have been some objective reason for combining the elements as claimed.

Suggestion or motivation may come from three sources: the references themselves; the level of ordinary skill; or the nature of the problem solved by the references. There is no evidence in Giersberg or Hempelmann that would have provided such motivation. Why Giersberg separates its electrodes is not explained. Certainly not to prevent migration of tin ions, since Nafion® membranes uniformly allow cations to pass.<sup>1</sup> One could suppose several reasons,

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<sup>1</sup> Applicants acknowledge that this statement contradicts their earlier assertion, based on an incorrect understanding of the reference and the Nafion® membranes disclosed therein, that the Giersberg membrane was used to block tin ions. After further research it is understood that such membranes uniformly permit cations, including tin ions, to pass between the half-cells.

but supposition is not evidence. Giersberg is simply silent as to why it separates the electrodes. Nothing from the knowledge of one of ordinary skill in the art has been cited that would have suggested this modification of Hempelmann, either.

Further, there is nothing in the nature of the problem being solved by the references that would have suggested the combination now claimed, either. The cell of Giersberg is used to form aqueous solutions of tin oxalates by anodic oxidation, which aqueous solutions are later calcined to form tin oxides. Hempelmann is directed to a process wherein metal oxides are formed directly at the cathode in organic electrolytes. The processes differ in that one forms an intermediate product at the anode in an aqueous electrolyte that is subjected to further processing; the other forms the end product directly in an organic electrolyte at the cathode. While both references are aimed at forming electrically conductive metal oxides, the processes they describe are basically different. At best one of skill might try the proposed modification of Hempelmann, but obviousness to try is not obviousness. For this reason the double patenting rejection over Hempelmann in view of Giersberg is improper and should be withdrawn.

#### Obviousness

In this rejection Giersberg is the primary reference. The examiner recognizes two differences between Giersberg. Giersberg uses aqueous electrolytes, and the invention uses an organic electrolyte; Giersberg does not teach the

particle size of the end product of the claimed process. The examiner argues that it would have been obvious to modify the disclosure of Giersberg with these teachings of Hempelmann "because Hempelmann teaches that such modification would provide the small mixtures of metal oxides as claimed." Again, this is simply faulty reasoning, both logically and legally.

First, Hempelmann teaches nothing about "modifications;" it teaches about its disclosed process. The question is why one of skill would have been motivated to incorporate its teachings into Giersberg's cell. Nothing in the references, ordinary skill in the art, or the nature of the problem to be solved would have suggested changing to an organic solvent. Moreover, there is no basis for one of skill to expect that the nanoscale oxides would have been formed directly in the cell where Giersberg teaches that only tin (IV) oxalates are formed from its aqueous oxalic acid electrolyte. This rejection is nothing more than an impermissible hindsight reconstruction of the claimed process by picking and choosing the claimed elements from the references, without any objective suggestion to do so.

There are other significant differences, not acknowledged in the rejection, between the operation of the Giersberg cell and the process of claim 25. Giersberg forms tin (IV) oxalates in solutions that require further processing (calcining) to oxides; the invention forms its metal oxides in solid form directly in the cell. Giersberg

forms its oxalates at the anode; the invention forms its oxides at the cathode. Giersberg uses separate catholytes and anolytes; the invention uses a single starting electrolyte. Thus to reach claim 25 from Giersberg one has to make at least five modifications - change from an aqueous to an organic solvent, make nanoscale particles, form the metal oxides directly in the cell, form the metal oxides at the cathode, and use a single electrolyte starting solution. One of skill would have had no reasonable basis to conclude that the process of applicants' claim 25 would have resulted by making all of these modifications to Giersberg at once.

Most importantly, modifying Giersberg in this way would alter its basic operation in at least two ways. First, the product of the electrolytic cell would be made not at the cathode as disclosed, but at the anode. It would also require the elimination of Giersberg's calcining step, which is disclosed as a necessary component to obtaining the desired amorphous tin (IV) oxide. See Giersberg column 2, lines 3-8. Obviousness is not shown where the operation of the primary reference must be so profoundly altered.

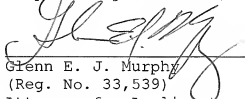
#### CONCLUSION

In view of the amendments and remarks above, applicants ask for reconsideration and allowance of all pending claims. Should any fees be due for entry and consideration of this Amendment that have not been

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accounted for, the Commissioner is authorized to charge  
them to Deposit Account No. 12-2135.

Respectfully submitted,



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